

From the INTERNATIONAL BUREAU

PCT

**NOTIFICATION OF TRANSMITTAL
OF COPIES OF TRANSLATION
OF THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

(PCT Rule 72.2)

To:

TICONA GMBH
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Date of mailing (day/month/year) 07 October 2004 (07.10.2004)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference 2002/G002	
International application No. PCT/EP2003/002175	International filing date (day/month/year) 04 March 2003 (04.03.2003)
Applicant TICONA GMBH et al	

Ticona GmbH/Patente

Vorg. _____

Eing.: 11. OKT. 2004

☐ WV.

☐ ablegen

☐ Vert. wie Vorg./angegeb.

1. Transmittal of the translation to the applicant.

The International Bureau transmits herewith a copy of the English translation made by the International Bureau of the international preliminary examination report established by the International Preliminary Examining Authority.

2. Transmittal of the copy of the translation to the elected Offices.

The International Bureau notifies the applicant that copies of that translation have been transmitted to the following elected Offices requiring such translation:

AZ, CA, CH, CN, CO, GH, JP, KG, KP, KR, MK, MZ, RU, TM

The following elected Offices, having waived the requirement for such a transmittal at this time, will receive copies of that translation from the International Bureau only upon their request:

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3. Reminder regarding translation into (one of) the official language(s) of the elected Office(s).

The applicant is reminded that, where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report.

It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned (Rule 74.1). See Volume II of the PCT Applicant's Guide for further details.

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Translation

PATENT COOPERATION TREATY

PCT/EP2003/002175



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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 2002/G002	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP2003/002175	International filing date (day/month/year) 04 March 2003 (04.03.2003)	Priority date (day/month/year) 05 March 2002 (05.03.2002)
International Patent Classification (IPC) or national classification and IPC C08L 101/00, C08K 13/04, 7/14, 5/50, 5/56		
Applicant TICONA GMBH		

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- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 6 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

 These annexes consist of a total of 4 sheets.
- This report contains indications relating to the following items:
 - I ☒ Basis of the report
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 26 September 2003 (26.09.2003)	Date of completion of this report 07 May 2004 (07.05.2004)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP2003/002175

I. Basis of the report

1. With regard to the elements of the international application:*

☐ the international application as originally filed☒ the description:

pages _____ 1-30 _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____

☒ the claims:

pages _____, as originally filed
 pages _____, as amended (together with any statement under Article 19
 pages _____, filed with the demand
 pages _____ 1-15 _____, filed with the letter of _____ 19 February 2004 (19.02.2004)

☐ the drawings:

pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____

☐ the sequence listing part of the description:

pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
☐ the claims, Nos. _____
☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP 03/02175

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-15	YES
	Claims		NO
Inventive step (IS)	Claims	1-15	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-15	YES
	Claims		NO

2. Citations and explanations

Reference is made to the following documents:

D1: EP-A-0494445

D2: EP-A-0346150

D5: JP(A) 07082441

D6: JP(A) 06073264

D6, which is considered the closest prior art, discloses a composition containing a) 30 to 97 parts by weight of thermoplastic polyester resin, b) 0 to 120 parts by weight of a filler, and c) 0.1 to 2 parts by weight of an epoxy hardener (abstract), it being possible to use a phosphonium salt or an aminotitanate *inter alia* (paragraph [0010]). In the examples, tetra-n-butyl-phosphonium bromide is used in amounts of between 0.1 and 1.0 parts by weight (paragraph [0016] and tables 1 and 2), and triethylbenzylammonium chloride is used in an amount of 0.5 parts by weight (paragraph [0021] and table 3).

Claim 1 differs from D6 in that phosphonium salts or ammonium salts only in amounts of between 0.00001 and 0.1 weight percent and titanyle compounds in an amount of 0.00001 and 1.0 weight percent are used as catalysts, although this only includes those which catalyse the

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formation of covalent bonds between the thermoplastic polymers and surface of the additive.

Therefore claim 1 is novel over D6 (PCT Article 33(2)).

The applicant indicates that the shaped bodies produced from the claimed shaping compounds display improved bonding of the phase of additive b) to plastics matrix a). According to the applicant, this improved bonding is manifested by improved mechanical properties. The comparative examples show that the claimed shaped bodies have better tensile strength, a better modulus of elasticity in extension and greater impact resistance than shaped bodies made of glass-fibre-reinforced plastics without the claimed catalysts.

Therefore the problem addressed by the invention can be considered that of producing shaped bodies having improved mechanical properties from thermoplastic polymers with additives.

D1 describes a mixture containing 87.45 % thermoplastic polycarbonate, 10 % of a mixture of polycarbonate with 30 % short glass fibres and 0.05 % of a transesterification catalyst (example 1, page 6, lines 38 to 45; claim 1). Tetrabutoxyorthotitanate or triethylammonium chloride can also be used *inter alia* as catalysts (page 4, lines 38 to 41).

The transesterification catalysts are used in D1 in order to decompose polycarbonates in a controlled manner and release CO₂ as propellant (page 2, lines 44 to 50). There is no suggestion of using transesterification catalysts to form covalent bonds with the filler. Therefore a person skilled in the art is not prompted to use the trans-

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP 03/02175

esterification catalysts of D1 as polycarbonates in other polymer compositions, in particular the polyesters of D6, in order to solve the above problem.

D2 and D5 disclose compositions which, in addition to a thermoplastic polymer, contain a filler and a titanyl compound as bonding agent (D2: claim 1; D5: abstract). However, neither document mentions catalysis of the formation of covalent bonds between the thermoplastic polymer and surface of the additive.

Therefore claim 1 involves an inventive step (PCT Article 33(3)).

Claims 2 to 13 are dependent on claim 1 and hence likewise meet the PCT novelty and inventive step requirements.

Claim 14 is said to be dependent on claim 15, which gives rise to a lack of clarity (PCT Article 6). A claim 14 dependent on claim 13 would meet the PCT novelty and inventive step requirements as well as the clarity requirements.

Claim 15 is concerned with a shaped object obtained by shaping a thermoplastic shaping compound as per claim 1 and hence is likewise novel and inventive (PCT Article 33(2) and (3)).

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